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A Revision of the Genus *Parnara* MOORE (Lepidoptera, HesperIIDae), with Special Reference to the Asian Species

Hideyuki CHIBA

Department of Entomology, B. P. Bishop Museum,
1525 Bernice Street, P.O. Box 19000-A, Honolulu, Hawaii 96817 0916, U.S.A.

and

John Nevill ELIOT

Upcott House, Bishop's Hull, Taunton, Somerset, TA4 1AQ, England

Abstract The genus *Parnara* MOORE is revised mainly on the basis of the male genitalia. A new species, *P. kawazoei*, is recognised from the Philippines and Sulawesi. *P. apostata* (SNELLEN), which was treated by EVANS (1949) as a subspecies of *P. guttata* (BREMER & GREY), is restored to species, and a new subspecies, *debdasi*, is described from Nepal. *P. bada* (MOORE), which was treated by EVANS as a subspecies of the Mascarene *P. naso* (FABRICIUS), is also restored to species and a new subspecies, *borneana*, is described from Borneo.

Key words HesperIIDae, *Parnara*, taxonomy, distribution, male genitalia.

Parnara MOORE, 1881

Parnara MOORE, 1881 : 166. Type species by original designation : *Eudamus guttatus* BREMER & GREY, 1853. Gender feminine.

Baorynnis WATERHOUSE, 1932 : 201. Type species by original designation : *Pamphila amalia* SEMPER, 1878.

The genus falls within the *Gegenes* group of EVANS (1949). The main characters of the genus are as follows. Small brown skippers, with hyaline spots, some of which may be missing, postdiscal in spaces 2, 3 and 4 and subapical in spaces 6, 7 and 8 on the forewing and postdiscal in spaces 2–5 on the hindwing. In addition, one or two spots may be present in the forewing cell, and in one taxon there may be two small spots in space 1b. On the hindwing there is a hyaline spot at the cell end in one species, and on the underside of other species small non-hyaline spots may be present in space 1b, 6 and at cell end. Antennae a little longer than one-third of the costa, with more segments on the nudum of the club on the apiculus. Mid-tibiae unspined. The male genitalia are very similar throughout the genus, the main differences being in the outer half of the costa of the valva and in the shape of the process arising from the distal

edge of the tegumen, which forms a sort of superuncus. Furthermore there are minor subspecific differences.

EVANS (1937*a*) recognised 3 African species : *monasi*, *poutieri*, and *marchalii* (with ssp. *bigutta*). He later considered those African taxa as well as Asian *bada* and Australian *sida* subspecies of *naso*, of which *marchalii* is a junior synonym (EVANS, 1946). The latest treatment of the genus is by EVANS (1949), who recognised only 4 species : *guttata*, *ganga*, *naso* and *amalia*. We consider that there are 9 species; 6 Asian, 1 Australian and 2 Ethiopian.

Key to the species of *Parnara*

1. Forewing with spot in space 2 with its inner edge in line with or beyond the origin of vein 3. Wing bases not ochreous2
 - Forewing with spot in space 2 with its inner edge inside the origin of vein 3. Wing bases prominently ochreous. Australian.*P. amalia*
2. Forewing with an upper cell spot or streak (very rarely absent).3
 - Forewing without an upper cell spot, but a small lower cell spot may be present in some taxa.5
3. Upperside brown ; hindwing without hyaline spot at cell end.4
 - Upperside almost black ; hindwing with a hyaline white spot at cell end.*P. ogasawarensis*
4. Large, forewing 15 – 19mm. Forewing nearly always with a lower cell spot, at least in ♂. Underside hindwing no spot in space 6. ♂ valva with costa straight and not serrate. Asian.*P. guttata*
 - Small, forewing 13 – 15mm. Forewing without a lower cell spot and upper spot streak-like. Underside hindwing usually with a spot in space 6. ♂ valva with costa outwardly convex and serrate. African.*P. monasi*
5. Second segment of palpi and hindwing cilia ochreous. Forewing subapical spots absent or reduced. Mascarene and Madagascan.*P. naso*
 - Second segment of palpi and hindwing cilia greyish. Forewing usually with 2 or 3 subapical spots (except in Bornean *P. bada*). Asian.6
6. Hindwing with spots in spaces 2 – 5 usually all present and nearly in a straight line (spot in space 4 slightly shifted in).7
 - Hindwing spots in spaces 2 – 5 small and irregular and may be absent.*P. bada*
7. Underside hindwing with spot in space 6 absent (*P. ganga*) or only very rarely present (*P. kawazoei*). Lower cell spot on forewing may be present.8
 - Underside hindwing with spot in space 6 nearly always present. Lower cell spot on forewing absent except rarely in Nepalese subspecies.*P. apostata*
8. ♂ valva with costa outwardly shallowly concave*P. ganga*
 - ♂ valva with costa outwardly convex and serrate.*P. kawazoei* sp. n

Remarks on the Asian species

The synonymy which we give under each species is adopted from that given by EVANS (1949). However, in the case of names erected by PLÖTZ, we are uncertain whether EVANS' arrangement is always correct, since it is impossible to identify PLÖTZ's species with any confidence from his descriptions alone. We note that EVANS gives a supposed sex for each of PLÖTZ's names, whereas PLÖTZ himself never states the sex. This suggests that EVANS may have examined PLÖTZ's types, which he might have done at some date prior to 1932. Fortunately it seems unlikely that any of PLÖTZ's names, when definitely identified, will be required to replace any of these currently used for the species.

1. *P. guttata* (BREMER & GREY) (Fig. 13)

1a. *P. guttata guttata* (BREMER & GREY, 1853)

Eudamus guttatus BREMER & GREY, 1853 : 10, pl. 3, fig. 2, ♂, North China.

Hesperia fortunei C. FELDER, 1862 : 489, ♀, Shanghai.

Hesperia dalima PLÖTZ, 1883 : 44, "Brasilien".

Hesperia dalima : PLÖTZ, 1886 : 97, "Africa".

Parnara kotoshona SONAN, 1936 : 214, ♂, Formosa.

Parnara guttatus batta EVANS, 1949 : 433, ♂, Fukien. **Syn. n.**

1b. *P. guttata mangala* (MOORE, 1866)

Pamphila mangala MOORE, 1866 : 792, ♂, North India.

Pamphila philino MÖSCHLER, 1878 : 220, ♂, Himalaya.

Hesperia kolantus PLÖTZ, 1885 : 227, India.

Parnara ormuzd GRUM-GRSHIMAILO, 1888 : 307, ♀, Bokhara.

The species flies from north China, Korea and Japan to Himalaya and central Asia. Within this huge range the male genitalia are very constant, there being no detectable difference between Japanese and Himalayan examples. EVANS (1949) gives three subspecies : *guttata* extending from north China and Japan to east central China, *mangala* from south and west China to the Himalayas and central Asia, and *batta* confined to high elevations in Fukien. Typically *guttata* is large, with both forewing cell spots present, at least in the male, and the spots in spaces 2–5 on the hindwing in a straight line. In *mangala* there is a tendency towards smaller size, absence of the lower cell spot and very occasional absence of the upper spot also, and a more irregular arrangement of the hindwing spots. At the extremes of their range, represented by *guttata* in north China and *mangala* in the north western Himalayas, the differences are sometimes well marked, but both are connected by an irregular cline and by individual variation, so that it is very difficult to say where one subspecies ends and the other begins. If subspecific division is desirable, which is doubtful, it seems better on the basis of phenotype and geography to use the Mekong watershed as the dividing line,

all those flying to the east being *guttata* and those to the west *mangala*. The taxon *batta* was given subspecific status by EVANS (1949) on the grounds of small size and reduced spotting, but the series in BMNH is variable in both respects, and there are similar but more extreme examples from Manipur. We think it best to regard both as local modifications of *guttata* and *mangala* respectively, probably due to microclimate and altitude, rather than as subspecies.

2. *P. ogasawarensis* MATSUMURA (Fig. 14)

Parnara ogasawarensis MATSUMURA, 1906 : 13, pl. 1, fig. 4, Bonin Is.

This taxon was treated by EVANS (1949) as a subspecies of *P. guttata*. Based on the sympatric distribution of *ogasawarensis* and *guttata* as well as morphological differences, SHIRÔZU (1953) separated *ogasawarensis* as a good species. Its deep blackish brown ground colour, clear white and generally prominent spotting and distinctive male genitalia leave no doubt of its specific status.

3. *P. apostata* (SNELLEN), **stat. rev.**

3a. *P. apostata apostata* (SNELLEN, 1886) (Figs. 1, 2, 3, 15, 16)

Pamphila apostata SNELLEN, 1886 : 27, Midden-Sumatra.

Hesperia haga PLÖTZ, 1886 : 96, Java.

Hesperia sifa PLÖTZ, 1886 : 96, Java.

3b. *P. apostata andra* EVANS, 1949, **stat. n.** (Figs. 7, 17)

Parnara guttatus andra EVANS, 1949 : 434, ♂, Borneo, Sarawak.

This species was treated by EVANS (1949) as conspecific with *P. guttata*, from which it differs in being smaller and darker, without cell spots on the forewing (except that a lower spot is rarely present in Nepalese specimens), and almost always in having an additional non-hyaline spot in space 6 on the underside of the hindwing. In the male genitalia the dorsum is broader and shorter.

In the nominotypical subspecies, flying in Sumatra, Malay Peninsula and south Burma, the valva is outwardly slightly convex with its upper edge tending to be corrugated, but not serrate. In Java and Bali the valva is straighter, with its upper edge smooth. Otherwise there is no difference from Sumatran examples, except that in Bali there is rarely a small non-hyaline spot in space 1b on the underside of the hindwing. If a subspecific name is required for Javanese and Balinese examples *haga* (PLÖTZ) is available.

In the Bornean subspecies *andra* EVANS the spot in space 1b on the underside of the hindwing is nearly always present and may be large and double. In addition, there

is usually, but not in the holotype, a small non-hyaline spot at the cell end, and the usual postdiscal spots in spaces 2–5 are enlarged. There is in BMNH a fully marked example of *andra* from south west Sumatra, but as all the other Sumatran examples are normal *apostata* we suspect that it may be wrongly labelled. EVANS also recorded a female of *andra* from Sulawesi, but this record is almost certainly based on a misidentified example of *P. kawazoei*. Unfortunately the specimen could not be found during a recent search*.

P. apostata has recently and unexpectedly been found in Nepal in a distinct and variable subspecies, and its occurrence elsewhere in the large area between Nepal and south Burma must be anticipated.

3c. *P. apostata debdasi* subsp. n. (Figs. 4, 5, 6, 18)

♂ blackish brown, with white markings. In addition to the usual markings on the forewing there are in the holotype two postdiscal spots in space 1b, the upper minute and the lower larger, and a minute lower cell spot. In two paratypes all these extra spots are missing, while in a third paratype the spots in space 1b only are present. On the underside of the hindwing there is a spot at cell end in three of the four examples, and in the holotype there is also a small spot in space 1b. Male genitalia are distinctive; the dorsum is broader and the costa of the valva is finely serrate at its distal end.

♀ underside of the hindwing a little paler than in the male, with spots in spaces 2–6 and at cell end. Forewing no cell spot nor spots in space 1b.

Holotype ♂, NEPAL, Kaski District, Pothana 5800 ft., 29. IV. 1988 (DEBDAS leg.), in BMNH.

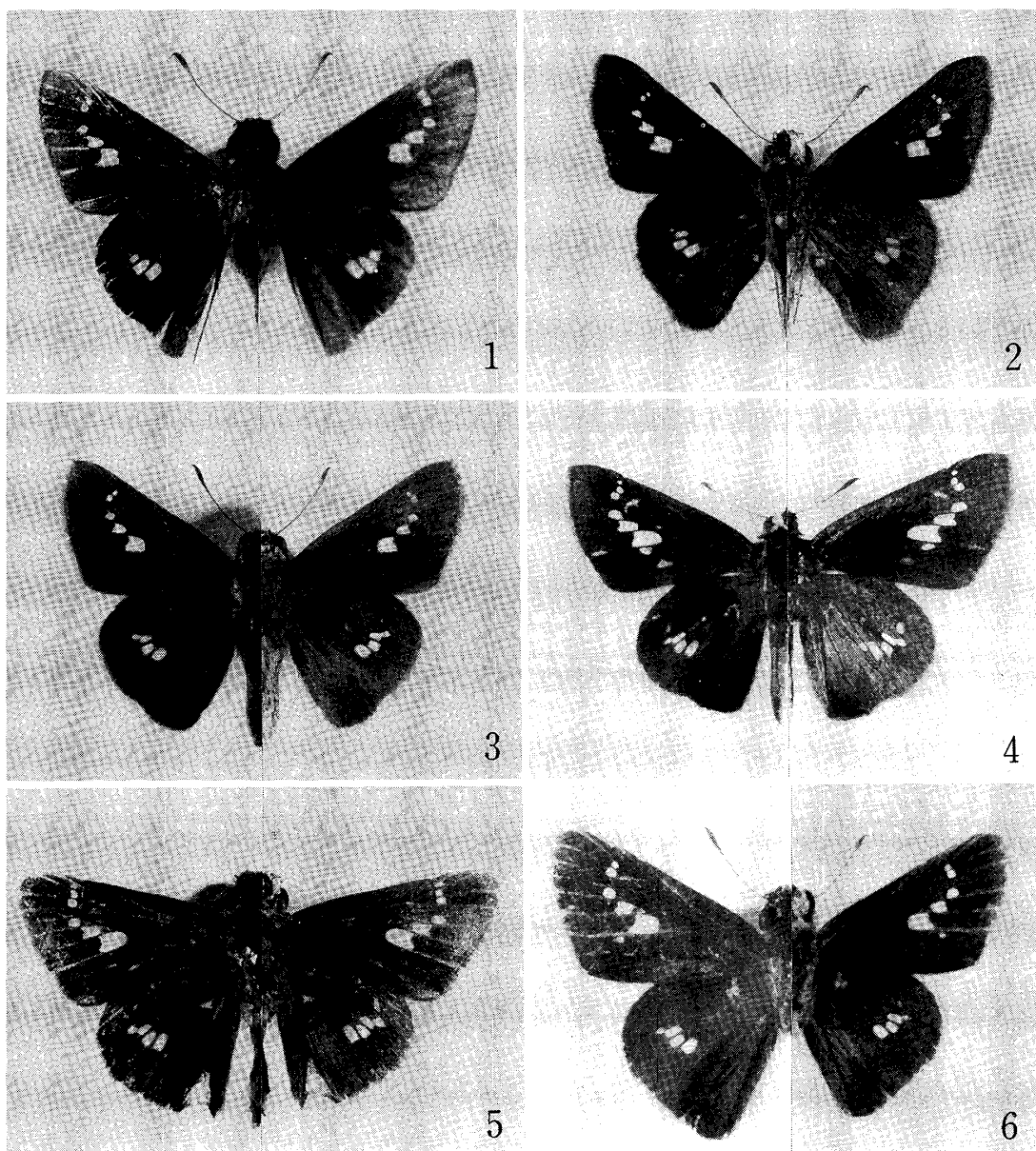
Paratypes. NEPAL, 1 ♀ (allotype), Chitwan District, Duma Khola, 500 ft., 5. X. 1990 (DEBDAS); 1 ♂, Kaski District, Rupa Lake, 2100 ft., 11. IV. 1988 (C. SMITH); 1 ♂ Tanaha District, Marsyandi River, 1400–2000 ft., 26. VIII. 1988 (DEBDAS), all to be deposited in Nat. Ref. Coll. Nepal; 1 ♂, Kaski District, Rupa Lake, 2100ft., 17. IX. 1986 (C. SMITH), in BMNH.

The subspecies is named after its discoverer, DEBDAS, and was forwarded to us by Mr. Colin SMITH.

4. *P. kawazoei* sp. n. (Figs. 8, 9, 10, 11, 19, 20)

♂ ♀ differ from *P. apostata apostata*, which they resemble in size and colour, in the fairly frequent occurrence of a lower cell spot on the forewing and of a cell end spot on the underside of the hindwing and very rare appearance of a spot in space 6. The

*Recently MARUYAMA, K. (1991, Hesperiididae, in OTSUKA, K., *Butterflies of Borneo*, 2 (2): i–[xiii], 1–82 (in Japanese), i–[xi], 1–77 (in English), pls. 1–39) showed a pair of *P. apostata andra* from Samarinda, East Kalimantan, which resemble poorly marked examples of subsp. *apostata*. It is probable that *andra* is just an infra-subspecific form. However, we treat *andra* as a distinct subspecies, pending further investigation.

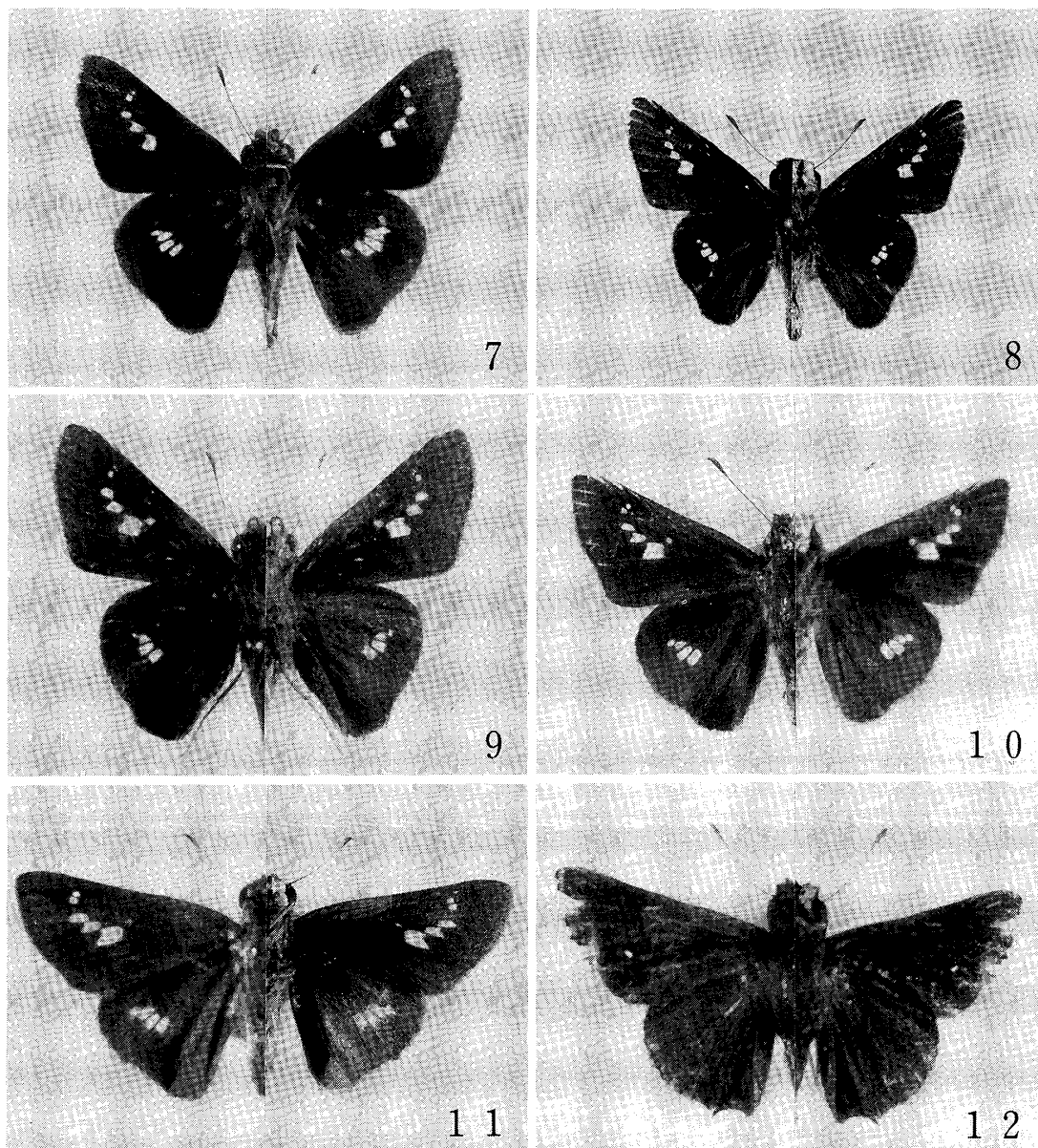


Figs. 1 – 6. *Parnara* spp. (Left : dorsal side. Right : ventral side; all males) 1. *P. apostata apostata*, Malaysia. 2. *P. apostata apostata*, Sumatra. 3. *P. apostata apostata*, Nias. 4. *P. apostata debdasi*, holotype, Nepal. 5. *P. apostata debdasi*, paratype, Nepal. 6. *P. apostata debdasi*, paratype, Nepal.

species is readily separated by the male genitalia ; in *kawazoei* the costa of the valva is outwardly convex and strongly serrate and the tegumental process differs from that of all other species, including sympatric *P. bada* with a rather similar valva, in being broadly rounded at its tip.

Holotype ♂, PHILIPPINES, Luzon, 11. IV. 1971 (Y. GUNJI coll.), in BMNH.

Paratypes. PHILIPPINES, 1 ♀(allotype) as holotype ; 2 ♂♂, Luzon, Los Baños, 23. XII. 1979 (H. CHIBA); 1 ♂1 ♀, Luzon, Quezon, 6. I. 1980 (H. CHIBA); SULAWESI, 1 ♂, Makasser, 20. III. 1937 (J. N. ELIOT); 1 ♀, Malino, 3000ft., 8. IV. 1937 (J. N. ELIOT),



Figs. 7–12. *Parnara* spp. (all males except 11) 7. *P. apostata andra*, Borneo. 8. *P. kawazoei*, Philippines. 9. *P. kawazoei*, Sulawesi. 10. *P. kawazoei*, paratype, Sulawesi. 11. *P. kawazoei*, paratype, Sulawesi. 12. *P. naso*, Mauritius.

all in BMNH.

Mr. Kiyoshi MARUYAMA sent us pictures of *Parnara* from Borneo along with pictures of the male genitalia. Among them, we found two individuals of *P. kawazoei*. Although we could not examine the specimens directly, we concluded from the picture of the male genitalia that they are certainly identical to this taxon.

The species is named after Mr. Akito KAWAZOÉ, who discovered its specific identity many years ago, and who kindly gave us his notes and drawings.

5. *P. ganga* EVANS (Fig. 21)

Parnara ganga EVANS, 1937b : 83, ♂, Manipur.

The species is very similar to the allopatric *kawazoei*, but the ground colour is a little paler brown and the forewing cell spot is of less frequent occurrence. There is never a spot in space 6 on the underside of the hindwing. The valva, which is outwardly smooth and slightly concave, identifies the species. The range is continental, from south India to south China and the Malay Peninsula.

6. *P. bada* (MOORE), **stat. rev.** (Fig. 22)6a. *P. bada bada* (MOORE, 1878)

Hesperia bada MOORE, 1878a : 688, ♂, Ceylon.

Hesperia quinigera MOORE, 1878b : 703, ♂, Hainan.

Gegenes hainanus MOORE, 1878b : 703, ♂, Hainan.

Hesperia intermedia PLÖTZ, 1883 : 44, Java.

Hesperia daendali PLÖTZ, 1885 : 226, Batavia.

Hesperia nondoa PLÖTZ, 1886 : 97, Manila.

Baoris distictus HOLLAND, 1887 : 123, fig., ♂, Hainan.

Baoris philotas DE NICÉVILLE, 1895 : 402, pl. Q, fig. 60, ♂, Travancore.

6b. *P. bada sida* (WATERHOUSE, 1934), **stat. n.**

Baoris sida WATERHOUSE, 1934 : 415, ♂, N. Queensland.

EVANS (1949) placed *bada* as a subspecies of the Mascarene *P. naso* (FABRICIUS, 1798) together with several Ethiopian taxa, including *P. monasi* (TRIMEN, 1889), since all have male genitalia of a broadly similar pattern (Figs. 12, 23). In our view they represent three distinct species with highly disjunct distributions. *P. naso*, with subspecies *poutieri* (BOISDUVAL, 1833) from Madagascar and *bigutta* EVANS, 1937 from Reunion, is dark ochreous brown and always lacks cell spots on the forewing, and the other spotting is reduced. The male genital armature is comparatively large in relation to its wing spread. *P. monasi*, occurring throughout sub-Saharan Africa, is a smaller and paler species with the upper cell spot of the forewing represented by a pale streak. On the underside of the hindwing there is usually a spot in space 6, and the usual spots in spaces 2–5 are almost in a straight line.

P. bada is intermediate in size between *naso* and *monasi*, and on the underside of the hindwing the scaling is more greenish ochreous. It is more variable than the other Asian species, and on the hindwing the spots are generally smaller and more irregular and variable in number, the maximum being five in spaces 2–6 plus a cell end spot. On the forewing a lower cell spot is rarely present ; the statement in EVANS (1949) that an upper cell spot is occasionally present is an error. The range of the nominotypical

subspecies extends from Sri Lanka to southern Japan, the Moluccas and Lesser Sunda Is. A rather weak subspecies, *sida* (WATERHOUSE, 1934), in which the spot in space 4 of the forewing is usually missing, flies in Australia.

It is surprising to find that in Borneo, but not in its satellite island of Pulo Laut, a distinct subspecies occurs with reduced spotting. It is anomalous that in this island the spotting is much enlarged in *P. apostata*.

6c. *P. bada borneana* subsp. n.

♂ ♀ darker brown than in subspecies *bada*. On the forewing the spots in spaces 2 and 3 are small, there is no spot in space 4 and the subapical spots are absent or reduced to a minute spot in space 6, but rarely a minute spot may be present in space 7 also in the female. The hindwing is usually unmarked, but up to two obscure, small spots may be present on the upperside and up to three small dark or dark-edged spots on the underside.

Holotype ♂, British North Borneo [Sabah], Mt. Marapok, in BMNH.

Paratypes. 5 ♂♂ 3 ♀♀, as holotype ; 1 ♂, Sarawak, Matang Rd., 12. VII. 1911 ; 2 ♂♂, Pontianak (MULAT); 1 ♂, Pontianak (LEDRU), both *ex* OBERTHÜR coll.; 1 ♂ 1 ♀, Mt. Kinabalu, Mesilau, 8 and 15. II. 1964 (J. SMART); 1 ♂, Brit. N. Borneo, Prov. Clarke, Klias Peninsula, 1. I. 1915 (G. F. C. WOOLLETT); 1 ♂, S. E. Borneo ; 1 ♀, Labuan, B. N. Borneo (*ex* SWINHOE coll.); ♀, Borneo 36-14. All in BMNH.

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摘 要

イチモンジセセリ属 *Parnara* の再検討 (千葉秀幸・J. N. ELIOT)

雄交尾器を基にイチモンジセセリ属の分類を再検討した。EVANS (1949) がイチモンジセセリ (*P. guttata*) の亜種として扱った *apostata* を独立種に昇格, *andra* を *apostata* の亜種とした。また, ネパールから *apostata* の亜種 *debdasi* を記載した。新種 *P. kawazoei* をフィリピン及びスラウェシから記載した。EVANS (1949) がアフリカの *P. naso* の亜種としたヒメイチモンジセセリ (*bada*) を種に昇格し, ボルネオから新亜種 *borneana* を記載した。

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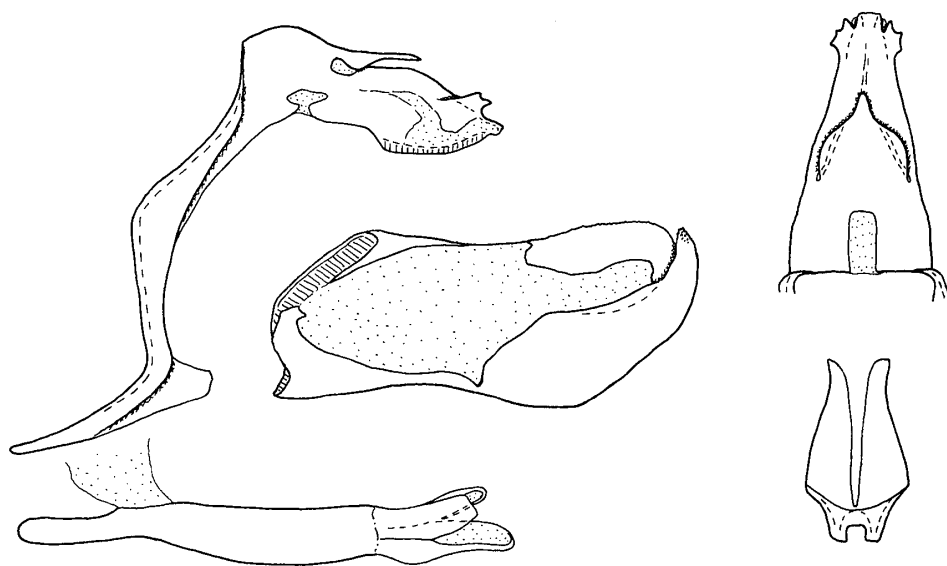


Fig. 13. Male genitalia of *Parnara guttata*, Japan.

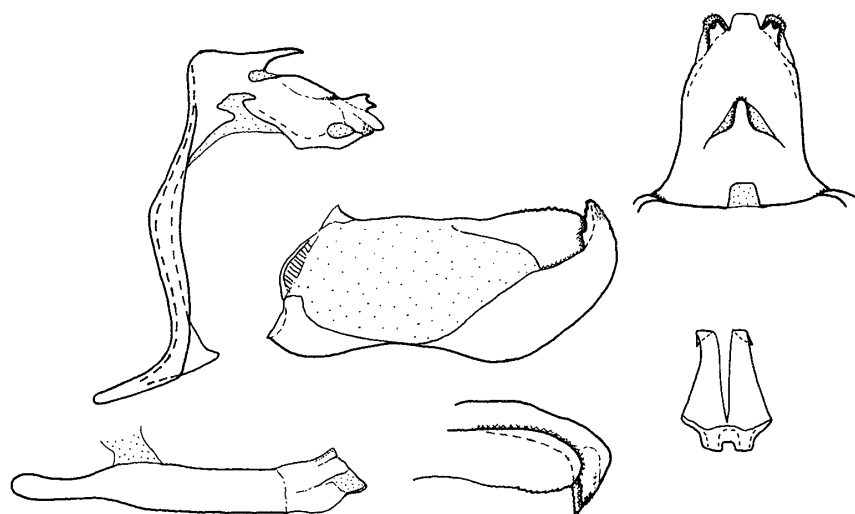


Fig. 14. Male genitalia of *Parnara ogasawarensis*, Ogasawara.

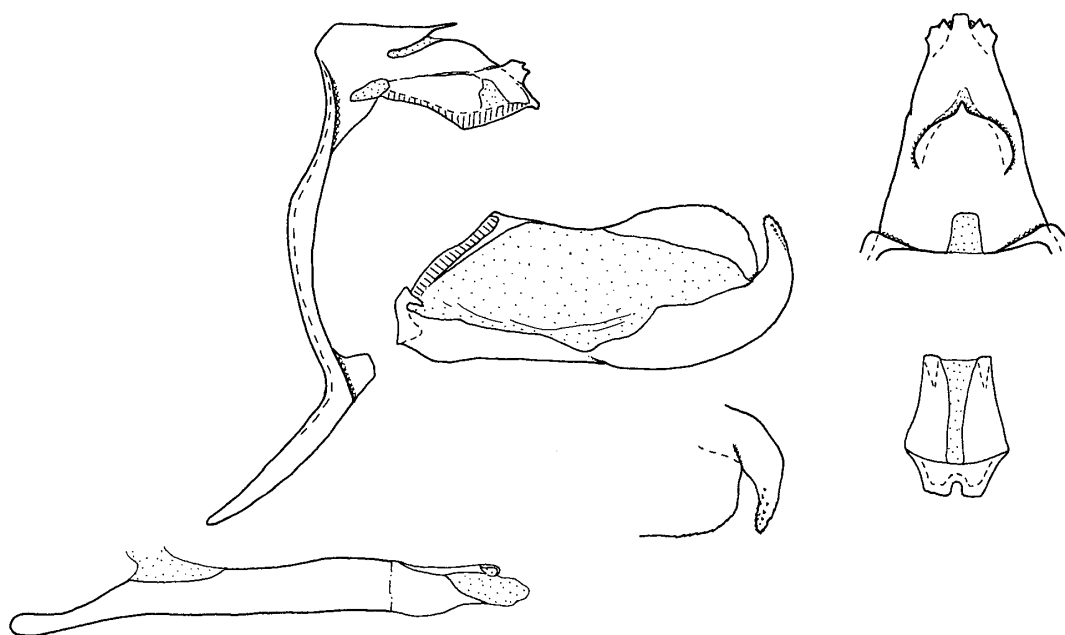


Fig. 15. Male genitalia of *Parnara apostata apostata*, Malaysia.

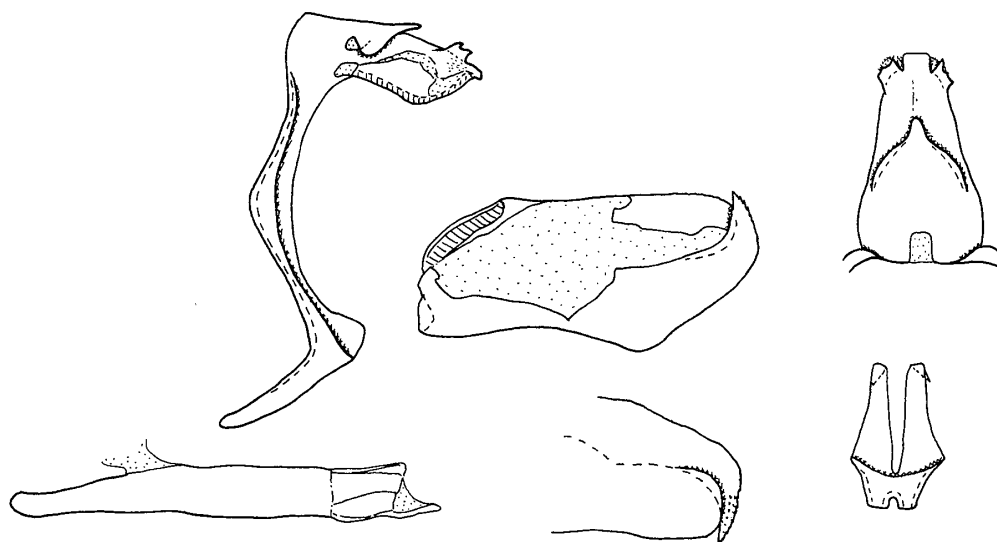


Fig. 16 Male genitalia of *Parnara apostata apostata*, Bali.

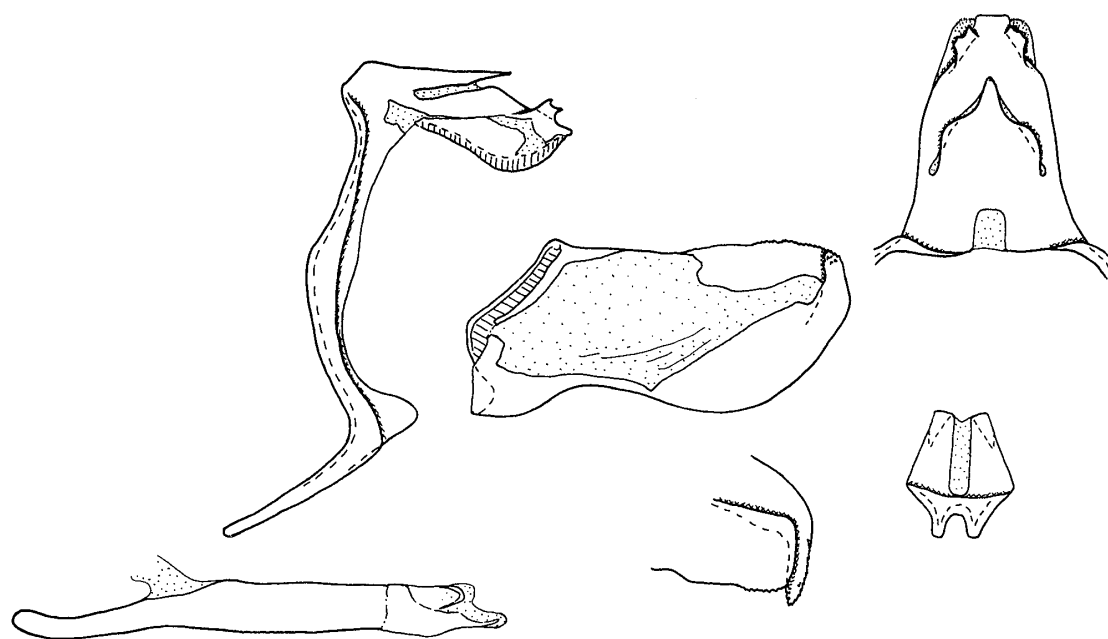


Fig. 17. Male genitalia of *Parnara apostata andra*, Borneo.

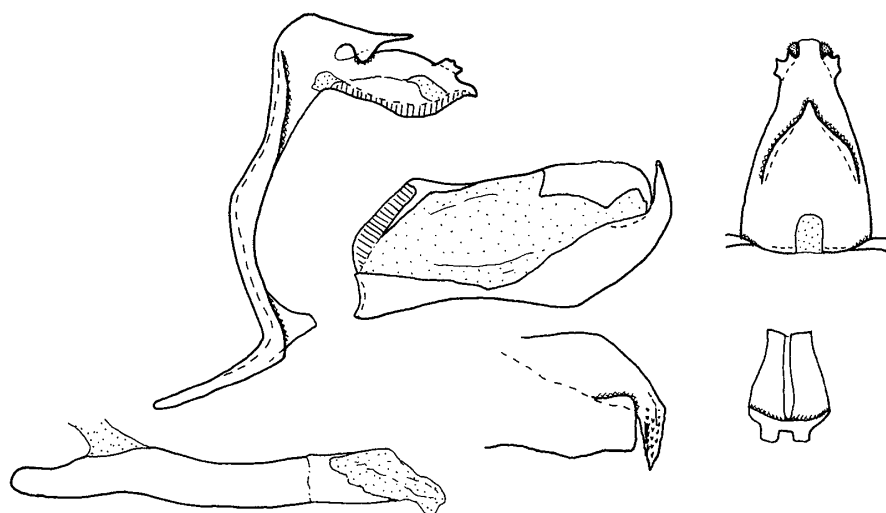


Fig. 18. Male genitalia of *Parnara apostata debdasi* subsp. n., Nepal.

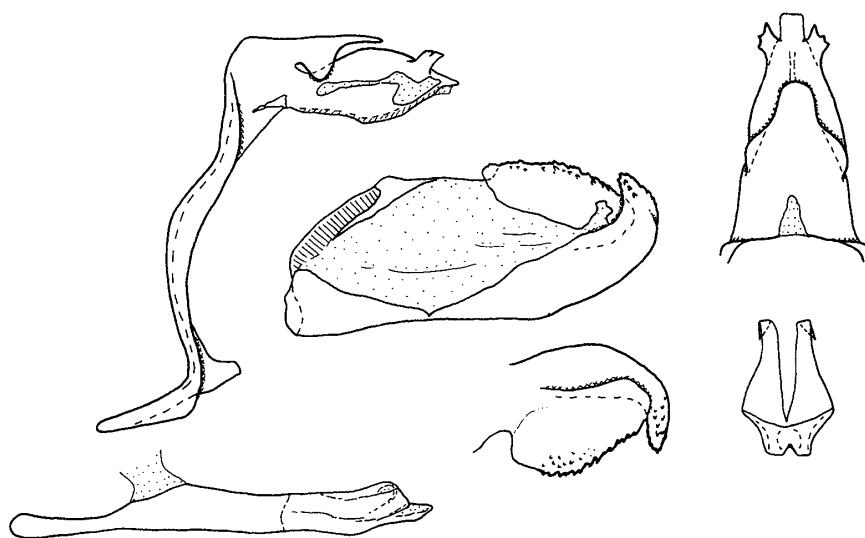


Fig. 19. Male genitalia of *Parnara kawazoei* sp. n., Philippines.

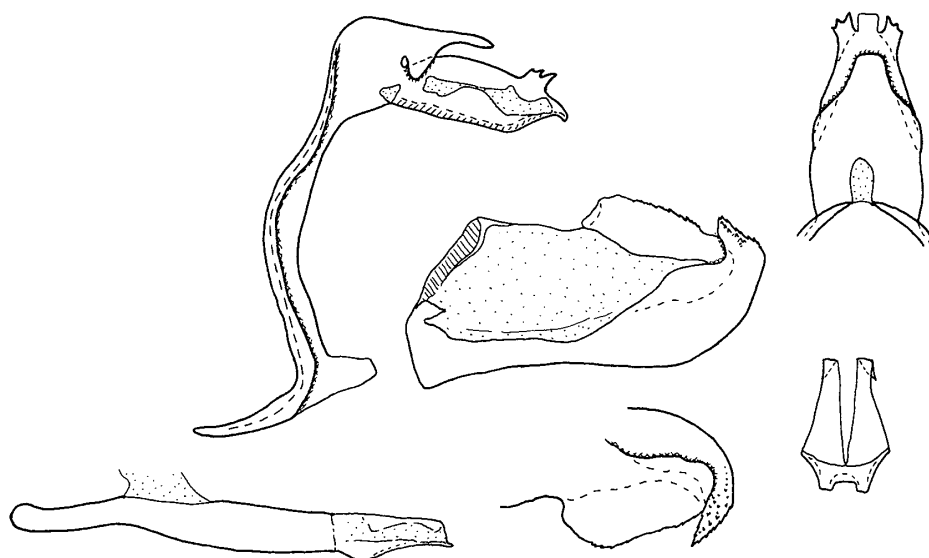


Fig. 20. Male genitalia of *Parnara kawazoei* sp. n., Sulawesi.

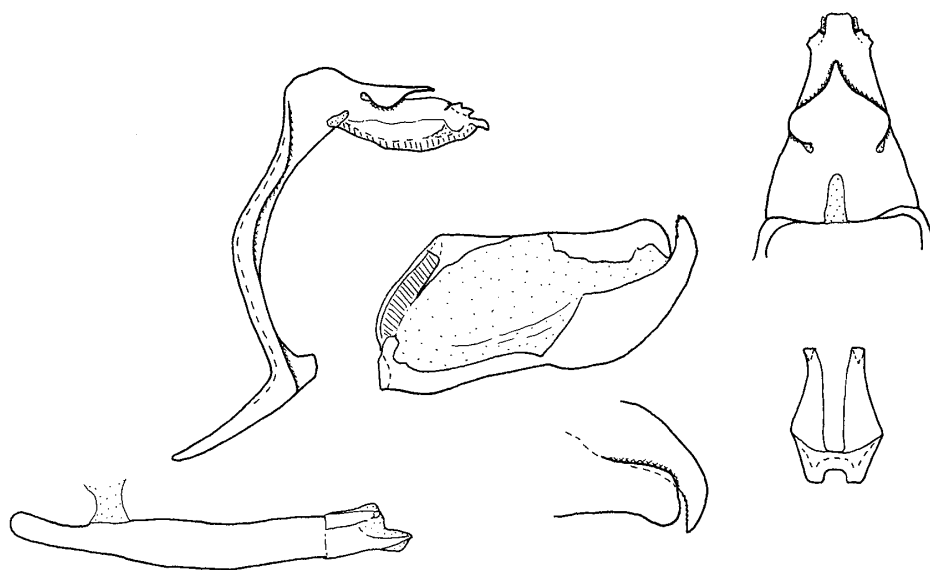


Fig. 21. Male genitalia of *Parnara ganga*, Myanmar.

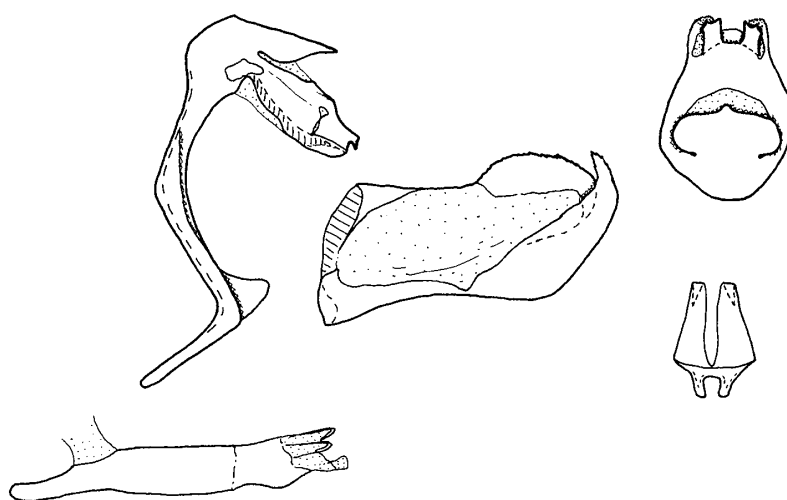


Fig. 22. Male genitalia of *Parnara bada bada*, Java.

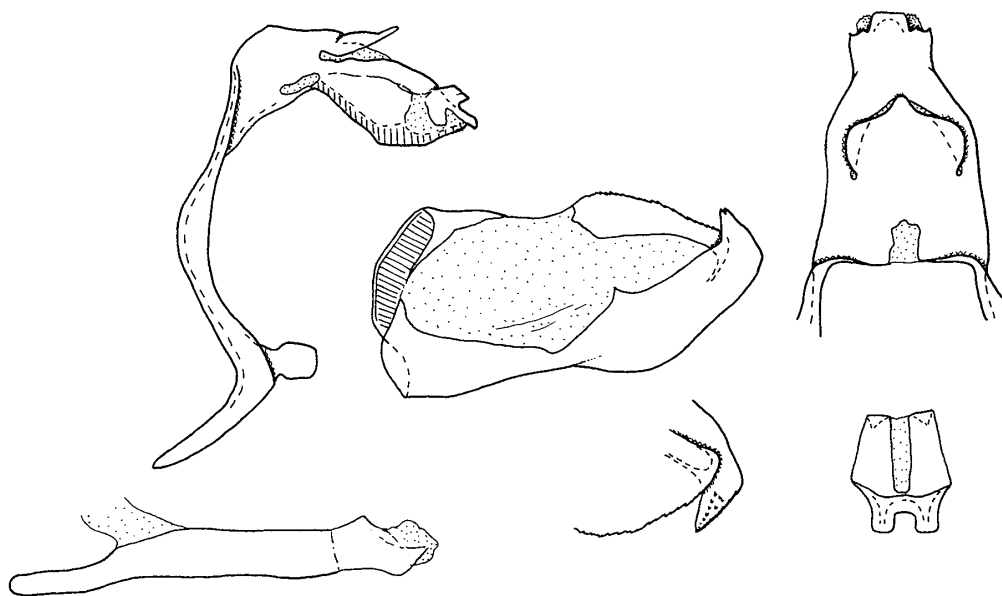


Fig. 23. Male genitalia of *Parnara naso naso*, Mauritius.